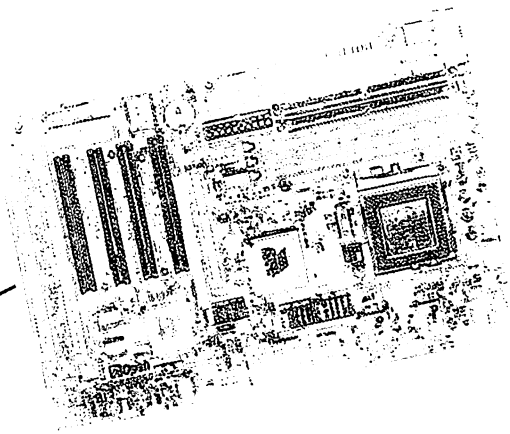


MOTHERBOARD

MX59 Pro

Quick Installation Guide

Manual CD Included

AOpen®
Component Solutions

Quick Installation Guide

Overview

Specification:

CPU	Intel Pentium Processor P54C, PP/MT (P55C), AMD K5/K6/K6-2/K6-III, Cyrix 6x86/M2 and IDT WinChip C6 family.
Chipset	VIA MVP4 AGPset.
Architecture	ISA x1 and PCI x4
Cache	512KB pipelined-burst cache onboard.
Memory	DIMM 168-pin x2, maximum 512MB.
BIOS	Award Plug-and-Play, 2M bit Flash ROM BIOS.
Onboard I/O	Serial Port x 2, FDD x 2, UDMA/66 IDE x 2 and USB x 2.
Board Size	220 mm x 245 mm

Key Features:

- ❑ Full-range CPU core voltage (from 1.3V to 3.5V, 0.05V or 0.1V per step)
- ❑ Support 100MHz external clock and Clock Generator Up to 124 MHz for Overclockers
- ❑ Onchip Audio and AGP
- ❑ Zero Voltage Wake On Modem
- ❑ Wake On LAN
- ❑ Wake On RTC Timer
- ❑ High Efficient Synchronous Switching Regulator
- ❑ Over Current Protection Circuit
- ❑ Keyboard & USB Resetable Fuse Protection
- ❑ CPU and Housing Fan Monitoring
- ❑ CPU Thermal Protection
- ❑ System Voltage Monitoring
- ❑ Support DMI Function
- ❑ FCC DoC & CE Certification
- ❑ AOpen Bonus Pack CD disc (Norton Antivirus Included)

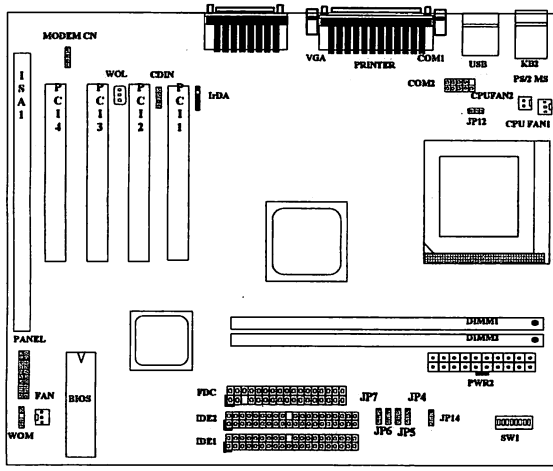
Note: This Quick Installation Guide is only for quick reference. For more information, please see also to the online User's manual in the AOpen Bonus Pack CD disc.

Item Checklist

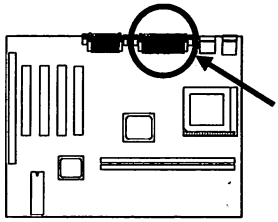
Please check if your package is complete according to the following checklist.

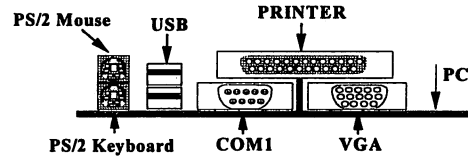
- ☑ Motherboard x1
- ☑ IDE cables x1
- ☑ Floppy drive cable x1
- ☑ AOpen Bonus Pack CD disc x1
- ☑ Quick Installation Guide x1

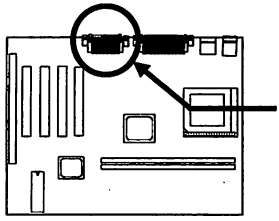
Jumper and Connector Locations:

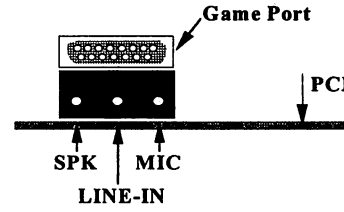


Back Panel:









Jumpers:

SW1:	DIP Switch for CPU voltage and clock ratio
JP4, JP5, JP6, JP7	CPU external clock
JP12:	CPU I/O Voltage
JP14:	Clear CMOS

Connectors:

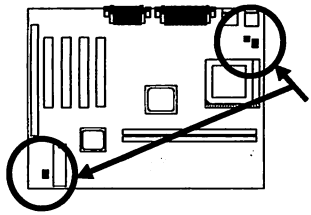
PWR2:	ATX power connector
USB:	USB connector

FDC:	Floppy drive connector
IDE1:	IDE1 primary channel
IDE2:	IDE2 secondary channel
CPUFAN1:	CPU fan connector
CDUFAN2:	CPU fan connector
FAN:	Fan connector
IrDA:	IrDA (Infrared) connector
PANEL:	Front panel (Multifunction) connector
CD-IN:	CD-audio connector
MODEM-CN:	Mono in (Pin 1-2) and Mic out (Pin 3-4)
WOM:	0V Wake On Modem connector
WOL:	Wake On LAN connector

Hardware Installation

Please follow the steps below to configure your motherboard.

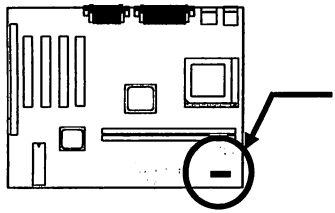
1. Plugging CPU and Connecting CPU Fan

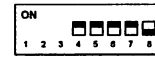


Plug in the fan cable to the fan connectors onboard. The fan connectors are marked **CPUFAN1**, **CPUFAN2** and **FAN** on the system board. You can plug the CPU fan cable to both the 2-pin fan connector CPUFAN1 and the 3-pin fan connector CPUFAN2. FAN can be reserved for the housing fan. Note that only CPUFAN2 and FAN support the fan monitoring function, because 3-pin fan has an extra pin called SENSE, which periodically sends fan signal out.

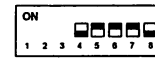
2. Setting CPU Core Voltage

Please refer to manual in AOpen Bonus Pack CD. There are 32 settings, from 1.3V to 2.1V (0.05V per step.) and from 2.1V to 3.5V (0.1V per step).

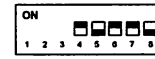




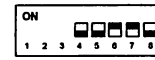
3.52V
6x86 or K5



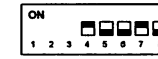
3.45V
P54C



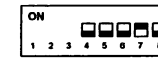
3.3V
IDT C6



3.2V
K6-233



2.9V
K6-166/200 or M2



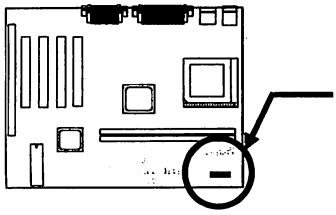
2.8V
P55C (MMX)

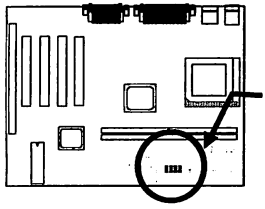
2.4V
K6-2 400/450/475 and K6-III

2.2V
K6-266/300 and K6-2

3. Selecting the CPU Frequency

CPU Frequency = Ratio * External Bus Clock

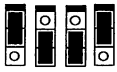




JP4 JP5 JP6 JP7

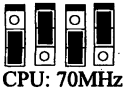
CPU: 60MHz
PCI: 30MHz

JP4 JP5 JP6 JP7



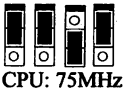
CPU: 66.8MHz
PCI: 33.4MHz

JP4 JP5 JP6 JP7

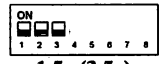


CPU: 70MHz
PCI: 35MHz

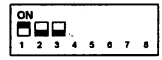
JP4 JP5 JP6 JP7



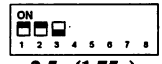
CPU: 75MHz
PCI: 25MHz



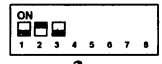
1.5x (3.5x)



2x (6x, 3.33x)



2.5x (1.75x)



3x

JP4 JP5 JP6 JP7

CPU: 75MHz
PCI: 37.5MHz

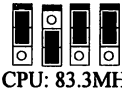
JP4 JP5 JP6 JP7

CPU: 80MHz
PCI: 28.5MHz

JP4 JP5 JP6 JP7

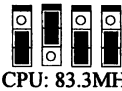
CPU: 80MHz
PCI: 40MHz

JP4 JP5 JP6 JP7



CPU: 83.3MHz
PCI: 27.7MHz

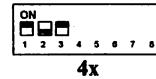
JP4 JP5 JP6 JP7



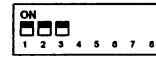
CPU: 83.3MHz
PCI: 41.7MHz

JP4 JP5 JP6 JP7

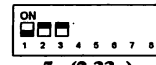
CPU: 95.3MHz
PCI: 31.6MHz



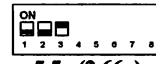
4x



4.5x



5x (2.33x)

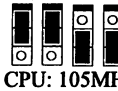


5.5x (2.66x)

JP4 JP5 JP6 JP7

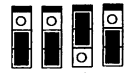
CPU: 100MHz
PCI: 33.3MHz

JP4 JP5 JP6 JP7



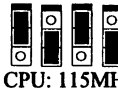
CPU: 105MHz
PCI: 35MHz

JP4 JP5 JP6 JP7



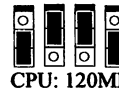
CPU: 110MHz
PCI: 36.7MHz

JP4 JP5 JP6 JP7



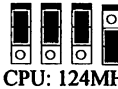
CPU: 115MHz
PCI: 38.3MHz

JP4 JP5 JP6 JP7



CPU: 120MHz
PCI: 40MHz

JP4 JP5 JP6 JP7



CPU: 124MHz
PCI: 41.3MHz

INTEL Pentium	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
P54C 100	100MHz =	1.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
P54C 133	133MHz =	2x	66MHz	ON	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
P54C 166	166MHz =	2.5x	66MHz	ON	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
P54C 200	200MHz =	3x	66MHz	OFF	ON	OFF	1-2 & 2-3 & 2-3 & 1-2

INTEL Pentium MMX	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
PP/MT 166	166MHz =	2.5x	66MHz	ON	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
PP/MT 200	200MHz =	3x	66MHz	OFF	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
PP/MT 233	233MHz =	3.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2

Cyrix 6x86 & 6x86L	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
P166+	133MHz =	2x	66MHz	ON	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
P200+	150MHz =	2x	75MHz	ON	OFF	OFF	1-2 & 1-2 & 2-3 & 1-2

Cyrix M2	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
MX-PR200	166MHz =	2.5x	66MHz	ON	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
	150MHz =	2x	75MHz	ON	OFF	OFF	1-2 & 1-2 & 2-3 & 1-2
MX-PR233	200MHz =	3x	66MHz	OFF	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
	166MHz =	2x	83.3MHz	ON	OFF	OFF	1-2 & 2-3 & 1-2 & 1-2
MX-PR266	233MHz =	3.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
MX-PR300	225MHz =	3x	75MHz	OFF	ON	OFF	1-2 & 1-2 & 2-3 & 1-2
	233MHz =	3.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
MX-PR333	250MHz =	2.5x	100MHz	ON	ON	OFF	1-2 & 1-2 & 2-3 & 2-3
	250MHz =	3x	83.3MHz	OFF	ON	OFF	1-2 & 2-3 & 1-2 & 1-2
	263MHz =	3.5x	75MHz	OFF	OFF	OFF	1-2 & 1-2 & 2-3 & 1-2
	266MHz =	4x	66MHz	ON	OFF	ON	1-2 & 2-3 & 2-3 & 1-2
MX-PR366	250MHz =	2.5x	100MHz	ON	ON	OFF	1-2 & 1-2 & 2-3 & 2-3

IDT C6	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
C6-150	150MHz =	2x	75MHz	ON	OFF	OFF	1-2 & 1-2 & 2-3 & 1-2
C6-200	200MHz =	3x	66MHz	OFF	ON	OFF	1-2 & 2-3 & 2-3 & 1-2

AMD K5	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
PR100	100MHz =	1.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
PR133	100MHz =	1.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
PR166	116MHz =	1.75x	66MHz	ON	ON	OFF	1-2 & 2-3 & 2-3 & 1-2

AMD K6	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
K6-166	166MHz =	2.5x	66MHz	ON	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
K6-200	200MHz =	3x	66MHz	OFF	ON	OFF	1-2 & 2-3 & 2-3 & 1-2
K6-233	233MHz =	3.5x	66MHz	OFF	OFF	OFF	1-2 & 2-3 & 2-3 & 1-2
K6-266	266MHz=	4x	66MHz	ON	OFF	ON	1-2 & 2-3 & 2-3 & 1-2
K6-300	300MHz=	4.5x	66MHz	ON	ON	ON	1-2 & 2-3 & 2-3 & 1-2

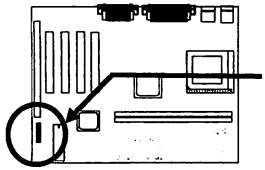
AMD K6-2	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
K6-2 300	300MHz	3x	100MHz	OFF	ON	OFF	1-2 & 1-2 & 1-2 & 1-2
K6-2 333	333MHz	3.5x	95MHz	OFF	OFF	OFF	2-3 & 1-2 & 1-2 & 1-2
K6-2 350	350MHz	3.5x	100MHz	OFF	OFF	OFF	1-2 & 1-2 & 1-2 & 1-2
K6-2 366	366MHz	5.5x	66MHz	OFF	OFF	ON	1-2 & 2-3 & 2-3 & 1-2
K6-2 380	380MHz	4x	95MHz	ON	OFF	ON	2-3 & 1-2 & 1-2 & 1-2
K6-2 400	400MHz	4x	100MHz	ON	OFF	ON	1-2 & 1-2 & 2-3 & 2-3
K6-2 450	450MHz	4.5x	100MHz	ON	ON	ON	1-2 & 1-2 & 2-3 & 2-3
K6-2 475	475MHz	5x	95MHz	OFF	ON	ON	2-3 & 1-2 & 1-2 & 1-2

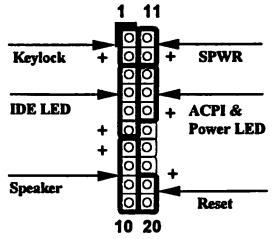
AMD K6-III	CPU Core Frequency	Ratio	External Bus Clock	S1	S2	S3	JP4,JP5,JP6,JP7
K6-III 400	400MHz	4x	100MHz	ON	OFF	ON	1-2 & 1-2 & 2-3 & 2-3
K6-III 450	450MHz	4.5	100MHz	ON	ON	ON	1-2 & 1-2 & 2-3 & 2-3

4. Connecting Front Panel Cable and Power Cable

Attach the power LED, keylock, speaker, and reset switch connectors to the corresponding pins. If you enable "Suspend Mode" item in BIOS Setup, the ACPI & Power LED will keep flashing while the system is in suspend mode.

Locate the power switch cable from your ATX housing. It is 2-pin female connector from the housing front panel. Plug this connector to the soft-power switch connector marked **SPWR**.





Panel

5. Plug memory module and FDC and IDE cables.

Be careful of the pin1 orientation. Wrong orientation may cause system damage. Please refer to the diagram on page 2.

6. Power On and Load BIOS Setup Default

To enter the BIOS Setup, press [DEL] during POST (Power-On Self Test). Choose "Load Setup Defaults" for recommended optimal performance. Please avoid of using "Load Turbo Defaults", unless you're sure your system components (CPU, DRAM, HDD, etc.) are good enough for turbo setting. For detailed information, please refer to "AWARD BIOS" section in the User's Manual.

7. Onchip Audio and AGP

This motherboard comes with an onchip 16-bit sound processor and a high performance onboard graphics accelerator.

Software Installation

For installing Windows 95, please make sure you have followed below procedures.

1. First, don't install any add-on card.
2. Install Window 95 into your system.
3. Install Windows 95 OSR2 v2.1, 1212 or 1214 version and later with USB support. Otherwise, you need to install USBSUPP.EXE.
4. Install the VIA 4 in 1 driver, which includes VIA Bus Master IDE Driver, AGP Vxd driver, IRQ routing driver, and VIA chipset function registry program.
5. Install the onchip AGP driver.
6. Install the onchip audio driver.
7. Finally, Install other add-on cards.

For installing Windows 98, please make sure you have followed below procedures.

1. First, don't install any add-on card.
2. Enable **USB Controller** in BIOS Setup menu to make BIOS fully capable of controlling IRQ assignment.
3. Install Window 98 into your system.
4. Install the VIA 4 in 1 driver, which includes VIA Bus Master IDE Driver, AGP Vxd driver, IRQ routing driver, and VIA chipset function registry program.
5. Install the onchip AGP driver.
6. Install the onchip audio driver.
7. Finally, Install other add-on cards.

In the AOpen Bonus Pack CD disc, you can find above drivers in the path X:\Mx59pro\Driver (Where X: represents your CDROM drive).

Note: *Make sure you have set the display mode to the default setting (640 x 480, 16 colors) prior to uninstalling the VIA 4 in 1 driver.*

Note: *Both VIA AGP driver and audio driver don't support Windows NT.*

Frequently Asked Questions

The following sections are not a must to install this motherboard, they are list here for your reference.

How to Upgrade BIOS?

AOpen Easy Flash is more user friendly than traditional flash method. The BIOS binary file and flash routine are combined together and you simply run a single file to complete the flash process.

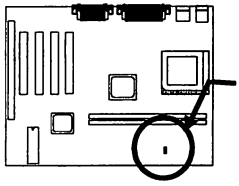
1. Get new BIOS upgrade program from AOpen's web site. For example, MX59P200.EXE.
2. Reboot the system to DOS mode without loading any memory handler (such as EMM386) or device driver. It needs around 520K free memory space.
3. Execute A:> MX59P200
   DO NOT turn off the power during FLASH PROCESS.
4. Reboot the system by turn off the power after flash is completed.
5. Reload the "BIOS SETUP DEFAULT" and reconfigure other items as previous set. Save & Exit. Done!

Note: The upgrade of new BIOS will permanently replace your original BIOS content after flashing. The original BIOS setting and Win95/Win98 PnP information will be refreshed and you probably need to re-configure your system.

How to Clear CMOS?

JP14	Clear CMOS
1-2	Normal operation (default)
2-3	Clear CMOS

You need to clear the CMOS if you forget your system password. To clear the CMOS, follow below procedures:



Normal Operation (default)

Clear CMOS

1. Turn off the system and unplug the AC power.
2. Remove ATX power cable from connector PWR2.
3. Locate **JP14** and short pins 2-3 for a few seconds.
4. Return **JP14** to its normal setting by shorting pins 1-2.
5. Connect ATX power cable back to connector PWR2.
6. Turn on the system power.

What is Hardware Monitoring?

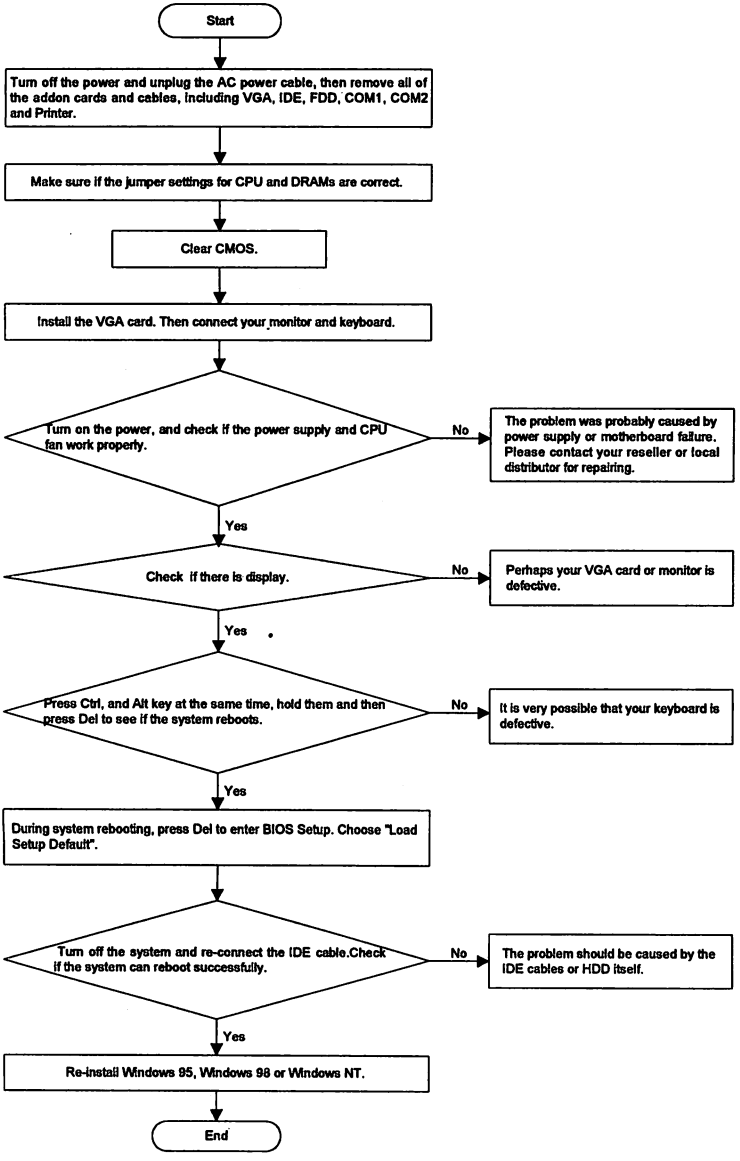
You can install Hardware Monitoring Utility to monitor CPU temperature, fans and system voltage, etc. For more information, please see the online manual in AOpen Bonus Pack CD disc.

Ultra DMA/66 IDE Hard Drive

This motherboard supports Ultra DMA/66. To install UDMA/66 HDD, a 80-pin IDE cable is required.

Troubleshooting

If you encounter any trouble to boot you system, follow the procedures accordingly to resolve the problem.



Technical Support

Dear Customers:

Thanks of choosing AOpen products. Provide best and fast service to our customer is our first priority, but we receive numerous emails and phone calls worldwide everyday, it is very hard for us to serve everyone on time. We recommend you follow below procedures to seek help before contact us. With your help, we can then continue to provide the best quality service to more customers.

Thanks very much of your understanding!
AOpen Technical Supporting Team

- **Online Manual:** The complete manual is in the companion CD disc – AOpen Bonus Pack. You can choose "Online Manual" item from the autorun program to see the electronic files, or you can open the file X:\Mx59pro\Manual\English\content.pdf. (Where X: means your CDROM drive letter.)
- **Test Report:** There is a detail compatibility and reliability test report in AOpen Bonus Pack and web page http://www.aopen.com.tw/tech/report/default.htm. It is recommended to choose card/device from this list. To see the test report, please choose "Test Report" item from the autorun program or open the file X:\tech\report\default.htm.
- **FAQ:** This AOpen Bonus Pack CD disc includes a lot of FAQs (Frequently Asked Questions). To read these FAQs, please choose "FAQ" item from the autorun program or open the file X:\Homepage\Tech\Faq\Default.htm.
- **AOpen Homepage:** There is a lot of useful information in our web site, such as jumper settings, latest BIOS, drivers, and more FAQs. Visit our homepage to see if there is the answer of your problem.

  Taiwan http://www.aopen.com.tw
  USA http://www.aopenusa.com
  Europe http://www.aopen.nl
- **AOpen News Group:** There are many news groups discussing AOpen products, your problem probably had been answered by our support engineer or professional users on these news groups. You may jump into these groups from **http://www.aopen.com.tw/tech/readnews.htm**, or subscribe these news groups from our free news server **news.aopen.com.tw**.
- **Contact Distributors/Resellers:** We sell our products through resellers and integrators. They should know your system configuration very well and should be able to solve your problem more efficiently than us. We believe they will be very glad to serve you. After all, their attitude of service is an important reference for you if next time you want to buy something else from them.
- **Contact Us:** If the problem still can not be solved, contact us for seeking technical support from http://www.aopen.com.tw/tech/techglb.htm.

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